

Krishnaswamy Ramkumar

**1193 Lynbrook Way
San Jose; CA 95129
Ph: (408) 255 - 1031 (Res)
Email: KRamkumar@aol.com**

Professional Goal

To contribute significantly to Research and Development of advanced VLSI technology segment of the semiconductor chip industry from a key management position

Professional Career Background

1993 to date:	Process Development Engineer at Cypress Semiconductor, San Jose, working on various aspects of VLSI processing - Oxidations, isolation (LOCOS and STI), gate / tunnel oxide process development, ONO stack development for SONOS, silicide process development, CVD processes, critical precleans, SOI technology, dual gate technology development, low K dielectrics Current designation: Senior Member of Technical Staff - in charge of Advance Technology Development at Cypress
1990 to 1993:	Visiting Research Associate at Rensselaer Polytechnic Institute; Worked on characterization of CVD SiO ₂ films for Multilevel Metallization schemes, interaction with Al lines etc Taught parts of courses on IC fabrication, Semiconductor devices
1989 to 1990	Visiting Scholar at Rutgers University Worked on Ferroelectric thin films and superconductor films
1980 to 1989	Faculty at Indian Institute of Science Guided Masters and Ph.D students on various topics of Semiconductor devices and electronic materials; Taught courses on Semiconductor devices physics, Microelectronics, Instrumentation etc (8 years)

Immigration Status

Permanent Resident

Publications and Patents

Over 75 publications in reputed journals and conferences;

2 Indian patents

9 US patents approved or issued

25 US patents filed

Books

One text book on “Electronic Devices” published by Wiley Eastern Ltd (India) in 1992.

One chapter in the “Hand book of Multilevel Metalization” published by Noyes Publications in 1993.

Educational Background

M. Tech with Electronics specialization; Indian Institute of Science, Bangalore, India, 1976.

Ph.D in Electrical Engineering, Indian Institute of Science, Bangalore, India, 1980

Key technical contributions in the last 6 years

1. Developed process modules for ultra thin tunnel oxide for E²PROM (growth on highly doped silicon)
2. Led development and transfer to manufacturing of LOCOS isolation for 0.35 um SRAM technology
3. Key contributor to initial development of LOCOS isolation for 0.25 um technology
4. Led the development of Shallow Trench Isolation for 0.20 um technology– extended to 90 nm technology
5. Developed ultra thin gate oxide process modules with precleans– from 150 A to 35 A
6. Process integration of tungsten silicide into SRAM technology
7. Development of dual gate oxide technology for 5 V/ 3.3 V compatible SRAM technology
8. Resident expert on all front end issues at Cypress

9. Involved in development of low K dielectric based metallization
10. Involved in development of TiSi₂ and CoSi₂ technology
11. Process integration of poly – tungsten gate stack
12. Development of nitrided gate oxide (~ 20 Å EOT) in a batch tool
13. Deuterium incorporation for improvement of device reliability
14. Development of in-situ ONO process in a batch tool
15. Defect reduction through substrate engineering

Equipment Related Contributions

1. Successfully implemented a dilute steam oxidation recipe for critical oxides on batch furnaces (Horizontal and VTR) – high quality gate oxides
2. Implemented the Preclean recipes in FSI and Wet Bench - HF last and RCA last
3. Optimization of recipes in FSI for performance and COO
4. Defined configuration and specs for a DNS wet bench for frontend cleans
5. Development of a robust recipe in the DNS start up
6. Optimization of CVD process for nitride deposition for superior particle performance
7. Developed a process/recipe for ONO film deposition in a AVP; incorporated all effects due to pressure, temperature, cooling etc
8. Defined specs and procured the first Optiprobe 2400 DUV for measuring thin films
9. Defined specs and procured the first ASET F5 from KLA for measuring ultra thin film stacks
10. Involved in the selection of the gapfill tool for STI